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PENSOFT

First records of the lace bug genus *Lasiacantha* Stål, 1873 (Hemiptera, Heteroptera, Tingidae) from Japan

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Abstract

The lace bug genus *Lasiacantha* Stål, 1873 (Hemiptera, Heteroptera, Tingidae, Tinginae, Tingini) is widely distributed in the Old World; however, no species has been recorded in Japan. To date, *L. altimitrata* (Takeya, 1933) has been reported in China and Taiwan. Here, I report *Lasiacantha* and *L. altimitrata* from Japan for the first time, based on materials collected from Ishigaki and Miyako islands in the Ryukyu Islands. In Japan, this lace bug is found in grasslands near beaches. Miyako Island is the easternmost locality for *L. altimitrata*.

Keywords

East Asia, Ishigaki Island, Miyako Island, Oriental Region, Ryukyu Islands, Tinginae, Tingini

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Introduction

The lace bug genus *Lasiacantha* Stål, 1873 (Hemiptera, Heteroptera, Tingidae, Tinginae, Tingini) comprises 59 species from the Oriental Region (Stål 1873; Drake and Ruhoff 1965; Štusák 1971, 1978; Golub 1977, 1988; Hoberlandt 1977; Linnavuori 1977; Vásárhelyi 1977; Duarte Rodrigues 1981, 1982, 1987a, 1987b, 1990; Péricart 1982; Nonnaizab 1985; Göllner-Scheiding 2005; Livingstone and Jeyanthibai 2005; Guilbert 2007; Cassis and Symonds 2011; Symonds and Cassis 2013). In East Asia, five species, namely *L. altimitrata* (Takeya, 1933), *L. cuneata* (Distant, 1909), *L. gracilis* (Herrich-Schäffer, 1830), *L. haplophylli* Golub, 1977, and *L. kaszabi* Hoberlandt, 1977, have been recorded to date (Péricart and Golub 1996), and no species has been reported from Japan.

Over the past 30 years, my colleague Masami Hayashi has collected an indeterminate species of *Lasiacantha* from the grassland near the beaches of Ishigaki and Miyako islands of the Ryukyu Islands, Japan, located in the Oriental Region. After careful morphological examination, I concluded that these specimens corresponded to *L. altimitrata*. In the present study, I report the genus *Lasiacantha* in Japan for the first time, based on the species *L. altimitrata*. Miyako Island is the easternmost locality for this species.

Methods

Dried specimens were examined under a stereoscopic microscope (SZ60; Olympus, Tokyo, Japan) equipped

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with an ocular grid. The measurements were obtained using a micrometer on an ocular grid. The specimens were photographed using a digital microscope (Dino-Lite Premier M, Opto Science, Tokyo, Japan) and a compact digital camera (Tough TG-6, Olympus, Tokyo, Japan), and the image stacks obtained with the digital microscope were processed using Adobe Photoshop 2021 v. 22.5.1. Morphological terms were assigned in accordance with previous monographs (Drake and Davis 1960; Takeya 1962; Drake and Ruhoff 1965).

All specimens used in this study were deposited in the Entomological Laboratory, Faculty of Agriculture, Kyushu University, Fukuoka, Japan (ELKU) and the Laboratory of Entomology, Faculty of Agriculture, Tokyo University of Agriculture, Kanagawa, Japan (TUA).

Distribution records of the species were mapped using SimpleMappr (Shorthouse 2010). Geographical coordinates were obtained from Google Maps. The map was edited using Adobe Photoshop 2021 v. 22.5.1.

Results

The genus *Lasiacantha*, represented by *L. altimitrata*, is recorded in Japan for the first time based on three specimens collected from Ishigaki and Miyako islands of the Ryukyu Islands.

Lasiacantha Stål, 1873

Identification. *Lasiacantha* is distinguished from other tingid genera by the following characteristics: dorsum brown, patchy; head with five long spines; pronotum tricarinate; hood semiglobose or conical; paranotum rounded throughout its length, semicircular; outer margin of paranotum with a single row of setiferous tubercles; hemelytron widest in middle part; anterior margin of hemelytron with a single row of setiferous tubercles; and costal area broad, more than 0.5 times as wide as discoidal area (cf. Symonds and Cassis 2013). The specimens recorded below match these diagnostic characteristics well (Figs. 1–3) and are confidently identified as *Lasiacantha*.

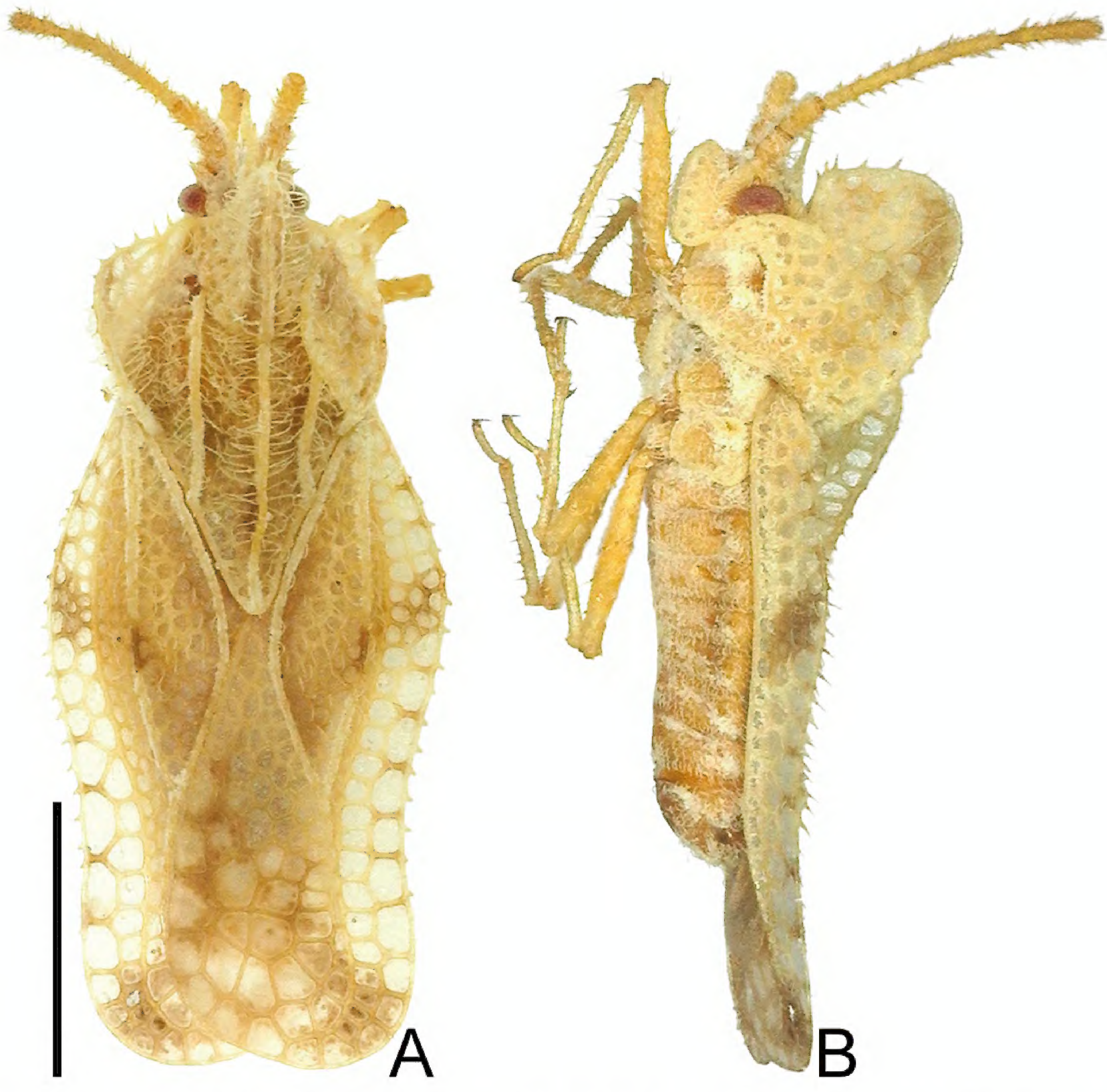

Figure 1. Dried male specimen of *Lasiacantha altimitrata* from Ishigaki Island, Ryukyu Islands, Japan. **A.** Dorsal view. **B.** Lateral view. Scale bar: 1.0 mm.

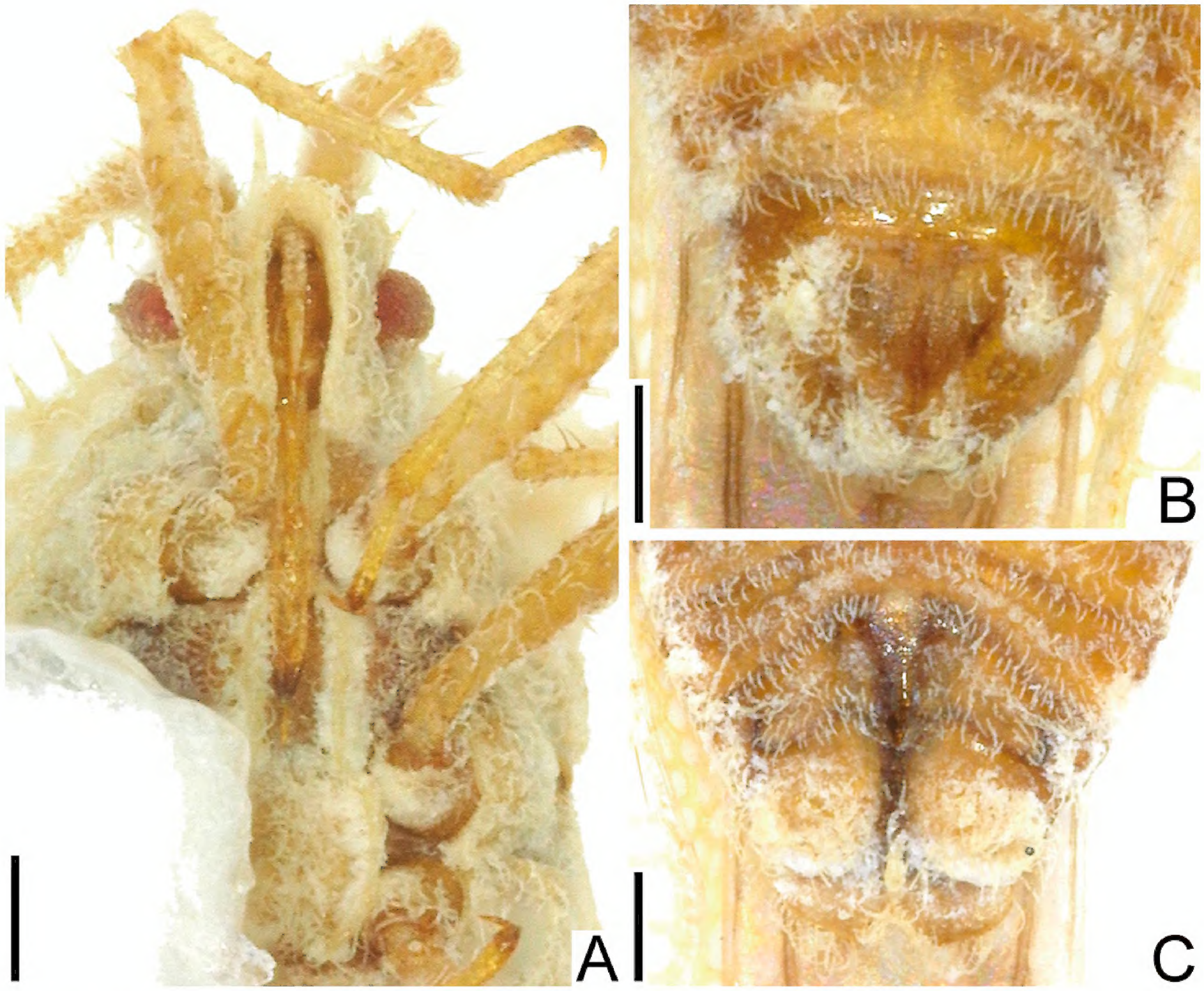

Figure 2. Detailed morphological images of *Lasiacantha altimitrata*. **A.** Male labium, ventral view. **B.** Male terminalia, ventral view. **C.** Female terminalia, ventral view. Scale bars: 0.2 mm.

***Lasiacantha altimitrata* (Takeya, 1933)**

Figures 1–3

New record. JAPAN – **Ryukyu Islands** • Miyako I., Higashi Henna Cape; 24°43′17.7″N, 125°27′56.1″E; 22.XI.1992; Masami Hayashi leg.; macropterous 1 ♂ TUA • Yaeyama Islands, Ishigaki I., Hirano; 24°36′03.6″N, 124°19′33.4″E; 28.X.2007; Masami Hayashi leg.; macropterous 1 ♂ TUA • as above but 19.I.2009; macropterous 1 ♀ TUA.

Holotype examined. TAIWAN – **Taipei City** • "Taihoku" (Taihoku, Formosa in original description) [= Taipei City]; 28.I.1932; R. Takahashi leg.; 1 ♂ ELKU.

Differential diagnosis. *Lasiacantha altimitrata* strongly resembles *L. gressitti* Guilbert, 2007, but *L. altimitrata* is easily distinguished from *L. gressitti* by the following characteristics (cf. Guilbert 2007): labium reaching middle part of mesosternum; hood higher than median carina at highest part; and costal area of hemelytron narrower than discoidal area at widest part (Figs. 1, 2).

Identification. The three specimens recorded from Japan (Figs. 1, 2) match well with the holotype (Fig. 3) and descriptions of *L. altimitrata* (Takeya 1933) in terms of morphological characteristics. Therefore, the specimens from Japan are identified as *L. altimitrata*.

Distribution. Japan (Ryukyu Islands: Miyako and Ishigaki islands); China (Fujian Province); Taiwan (Taipei City) (Takeya 1933; Drake and Maa 1953; present study) (Fig. 4). A record from India (Drake and Ruhoff 1965) does not list literature and examined specimens and appears to be erroneous.

Biology. *Lasiacantha altimitrata* was collected from a grassland near a beach in Japan (present study). It was previously found on an indeterminate lamiaceous herb in China (Drake and Maa 1953). Adults were collected in January, October, and November (Takeya 1933; present study).

Discussion

Previously, *Lasiacantha altimitrata* was recorded in one locality in Fujian Province, China, and one locality in Taipei City, Taiwan (Takeya 1933; Drake and Maa 1953). The discovery of *L. altimitrata* from Miyako Island, in the Ryukyu Islands, Japan, represents the easternmost occurrence of this species (Fig. 4). Additionally, the Miyako and Fujian localities are more than 900 km apart. I suggest that the geographic range of *L. altimitrata* is

Figure 3. Male holotype of *Lasiacantha altimitrata* and its labels.

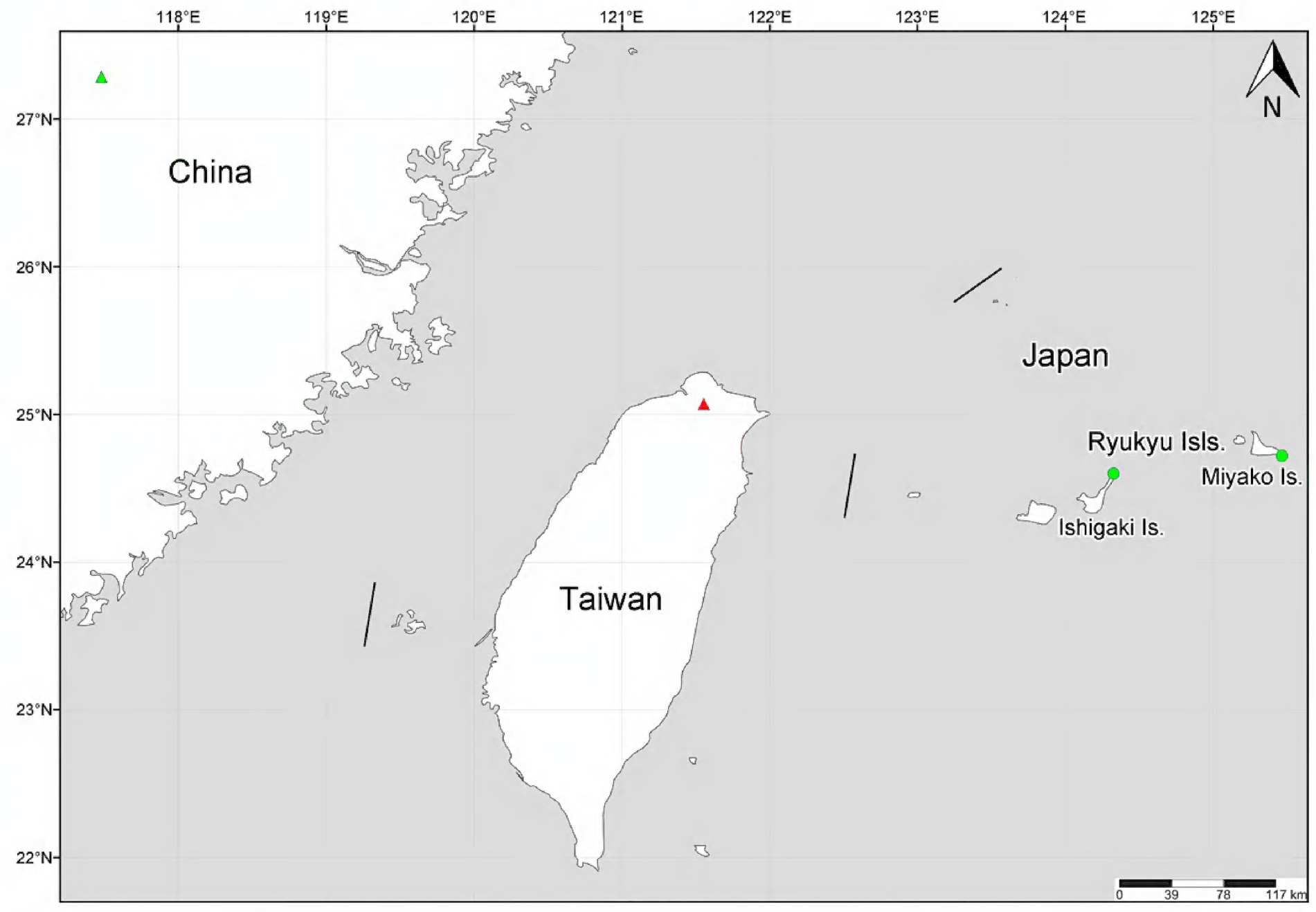

Figure 4. Collection sites of *Lasiacantha altimitrata*. Red icon = type locality; green icons = other localities. Circles = new records; triangles = known records.

not limited to a small area of southeastern China and northern Taiwan across the Taiwan Strait but may cover a wide area in the Oriental Region of East Asia. Therefore, reports of this species from more localities are expected in future field surveys.

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